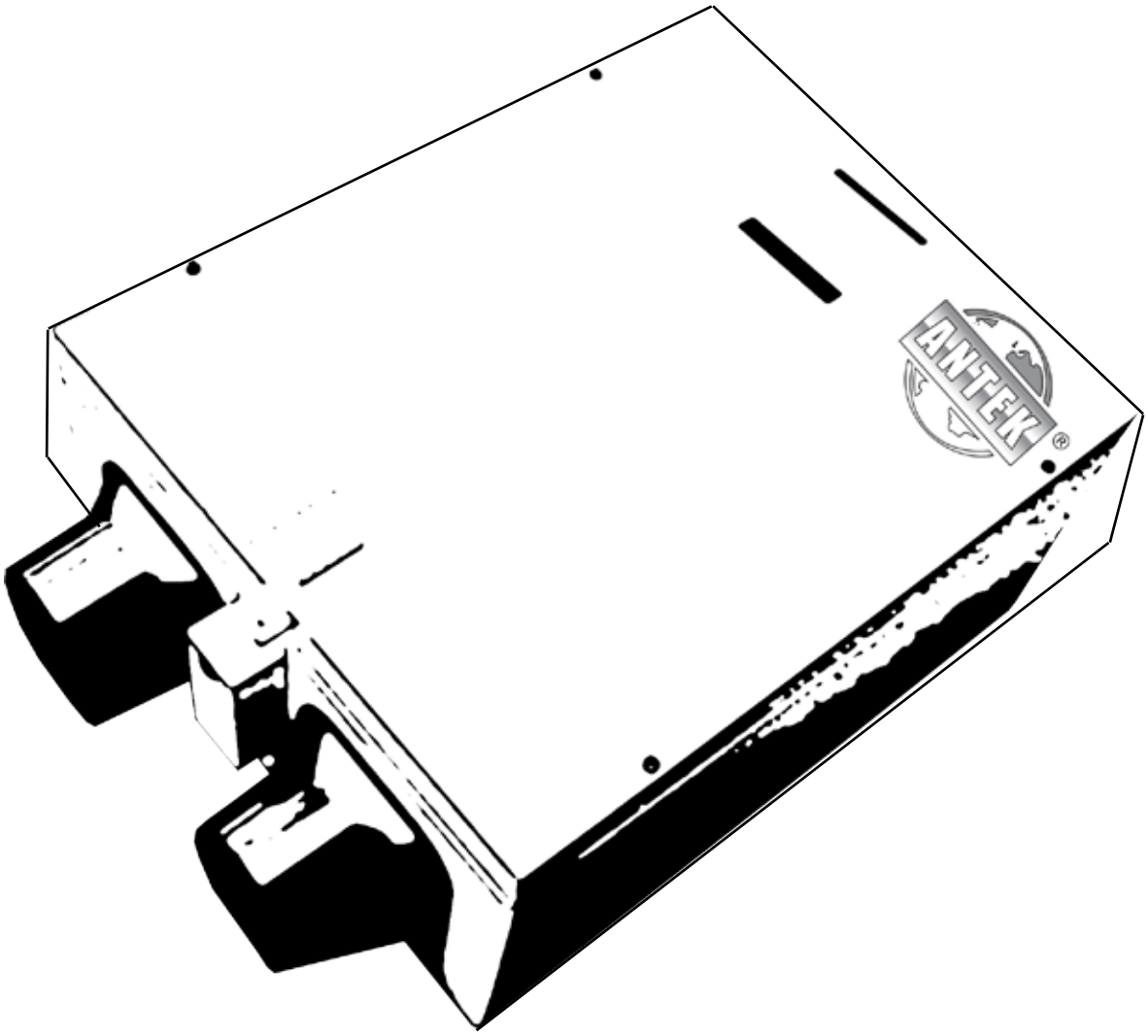
VENT MAGNA 100

GREEN ENERGY SYSTEMS

INSTALLATION AND MAINTENANCE INSTRUCTIONS



SHIPPING AND PACKING LIST APPLICATION

1 –Assembled ventilator
2 – Plastic airproof bag;Hanging straps
3 –Installation manual
4 –Product certification

REQUIRED TOOLS

Installation Tools

- tin snips
- assorted screw drivers
- electric drill
- hammer
- wire strippers
- knife
- caulking gun hose
- smoke pencil
- large zip ties
- fabric flexible duct - class II rated
- mastic tape
- alum. foil duct tape
- zip ties
- 13 mm I.D. drain

Balancing Tools

• Pitot Tube Balancing Kit
(Case, 8 ft. vinyl tubing, Pitot tube, magnehelic gauge (0-50 Pa.), and mounting plate)

• Pitot Tube with instructions and Digital Manometer (with resolution of 0-50 Pa. - must read to 1/100)

Optional Accessories

- 20 Minute Fan Timer
- Wall Mounted Dehumidistat
- Weatherhood Kit
- Round Diffuser
  - 100mm
  - 150mm
  - 200mm
- Kitchen Grille

- may be required by code for kitchen applications
- contains removable grease filter

APPLICATION

Heat Recovery Ventilators (VM) are designed to provide fresh air while exhausting an equal amount of stale air.
The VM is equipped with an aluminum core. The device uses the stale air that is being exhausted to condition the fresh air as it is being brought in.

GENERAL

These instructions are intended as a general guide and do not supersede local codes in any way.
Consult authorities who have jurisdiction before installation.

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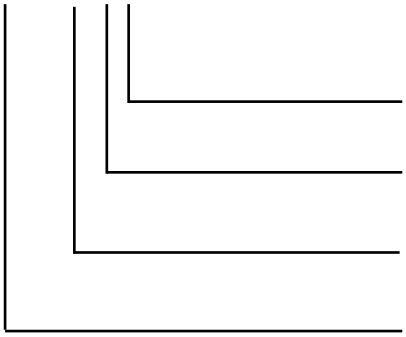
NOTE: Due to ongoing research and product development, specifications, ratings and dimensions are subject to change without notice.

VENT MAGNA 100

GREEN ENERGY SYSTEMS

ENGINEERING DATA

Nomenclature VM100-50WL



Distinguish Code: L-luxury appearance type (bottom check door), Standard type without mark

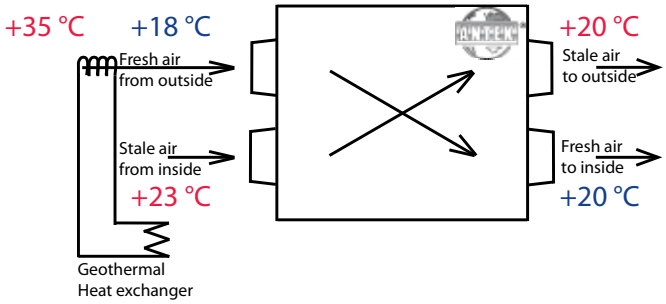
Pattern Code: W-horizontal

Rated Air Flow: number x 10m³/h

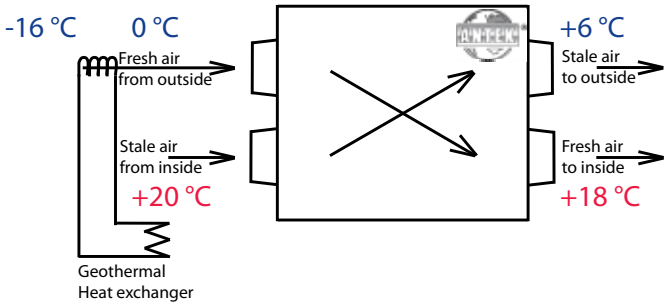
Product Code: VM100-total heat exchanger

HEAT RECOVERY SYSTEM

SUMMER OPERATION



WINTER OPERATION



ENGINEERING DATA

HEAT EXCHANGER ALUMINUM CORE
The cross-flow heat recovery core transfers heat between the two air streams. It is easily removed for cleaning or service.
MOTORS AND BLOWERS
Each air stream has one centrifugal blower driven by a common PSC motor.
FILTERS
Washable air filters in exhaust and supply air streams.
MOUNTING THE VM
Four threaded inserts at corners of case designed to accept four reinforced polyester straps that are supplied with the unit.(10mm)
CASE
Prepainted galvanized steel for superior corrosion resistance. Insulated to prevent exterior condensation. Drain connections two - 1/2" (12mm) OD
SPECIFICATION

FILTER NET: Dense filter net beside with inlet vent and outlet vent.
CONDITION TEMPERATURE: - TRANSPORT: -15 ~ 50°C
- OPERATE -10 ~ 40°C

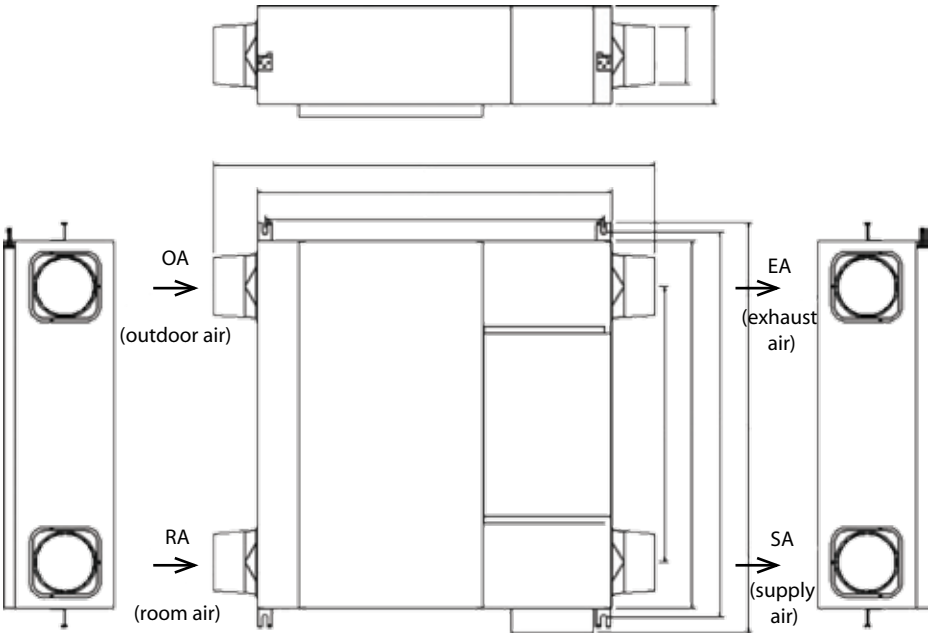
INSTALLATION METHOD: CELLING or VERTICAL

Model	Power [V/Hz]	Air Flow [m³/h]	Static pressure outside the machine [Pa]	Heat recovery rate [%]	Rated power [W]	Noise dB[A]
VM100-15W	230/50	150/100/80	100/60/30	76/78/80	56/46/39	38/33/30
VM100-25W	230/50	250/163/114	75/50/30	76/78/80	80/46/39	41/37/33
VM100-35W	230/50	350/293/275	100/60/30	76/78/80	90/77/64	42/39/35
VM100-50W	230/50	500/450/360	100/60/30	76/78/80	190/175/150	42/39/35
VM100-80W	230/50	800/600/450	150/100/80	78/78/82	320/273/205	48/45/40
VM100-100W	230/50	1000/780/650	115/75/50	78/78/82	450/375/330	49/45/40
VM100-150W	230/50	1500/1200/980	135/100/60	76/76/80	887/880/860	46/46/43
VM100-200W	230/50	2000/1500/1300	90/70/45	76/76/80	920/750/690	48/46/43
VM100-150W	400/50	1500	180	76	380 x 2	52
VM100-200W	400/50	2000	200	76	450 x 2	54
VM100-250W	400/50	2500	250	76	450 x 2	56
VM100-300W	400/50	3000	250	76	1100 x 2	60
VM100-400W	400/50	4000	320	76	1500 x 2	64

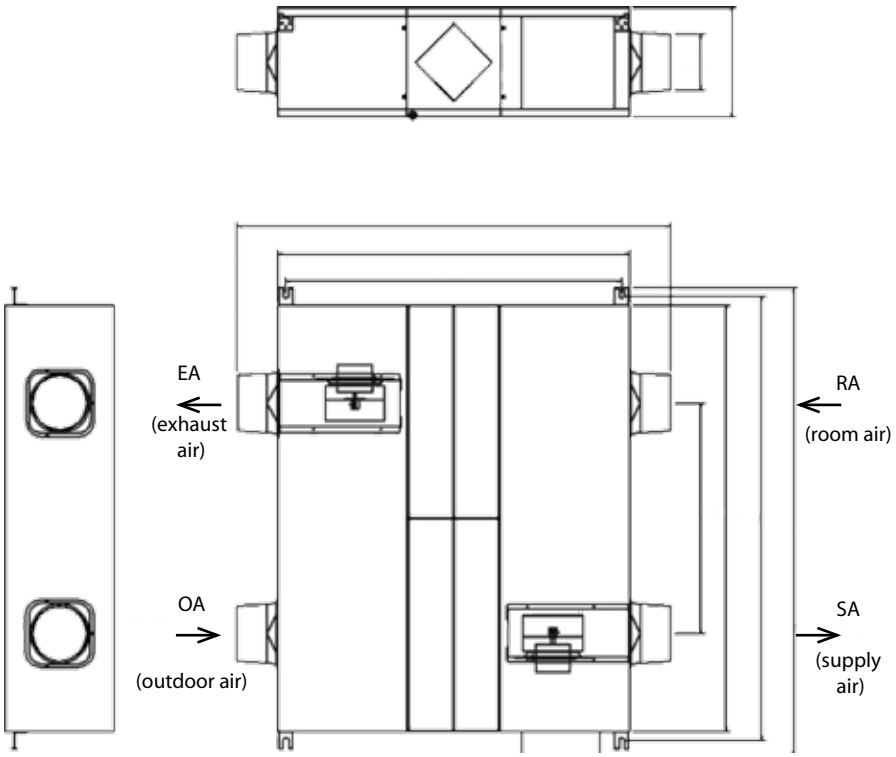
Notice: For exclude producing tolerance and apointed testing enviroment, it may not absolute measure to what shown in the specification when the condition changed.

ENGINEERING DATA

Dimension Diagram

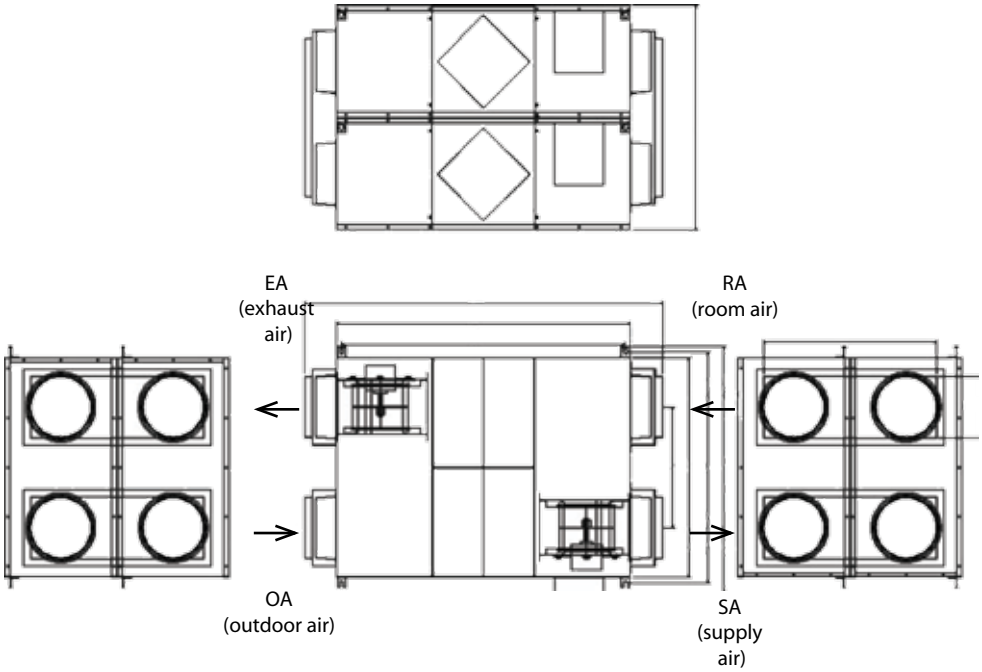


Flg. VM100-10WL and VM100-50WL (L*bottom check door)

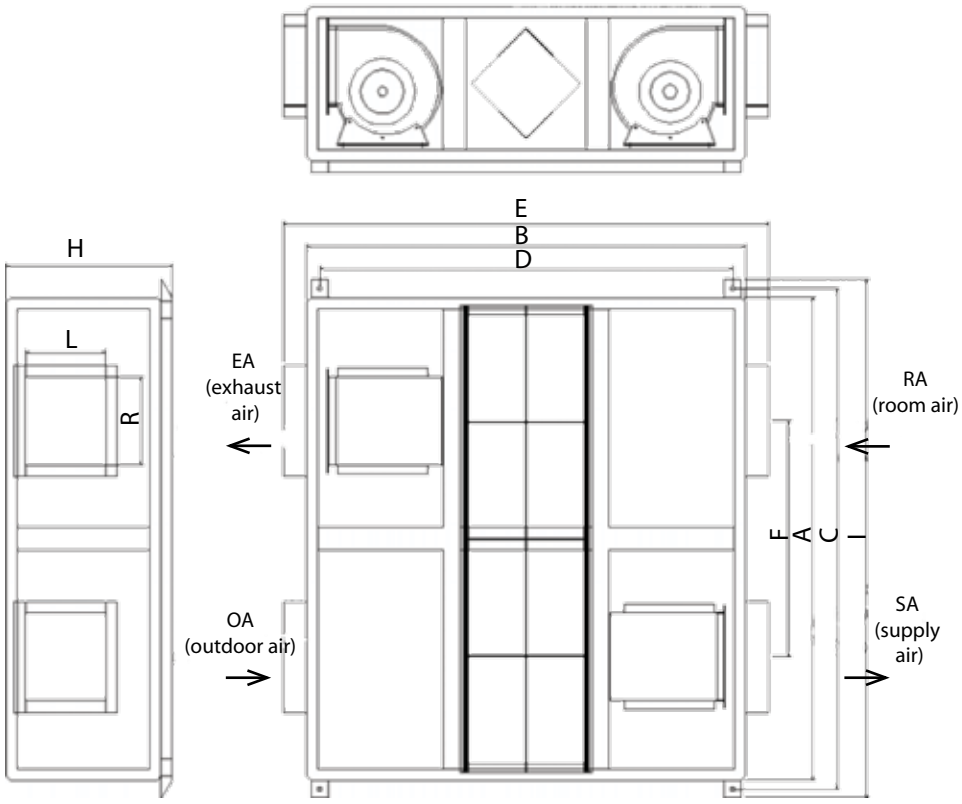


Flg. VM100-15WL and VM100-100WL (Common style, side check door)

ENGINEERING DATA



Flg. VM100-150W and VM100-200W (Commercial style, side check door)



Flg. VM100-150W and VM100-400W (Commercial style, side check door)

ENGINEERING DATA

Dimension Diagram size (mm)

Model	A	B	C	D	E	F	H	I	d	WT(Kg)
VM100-15WL	457	613	501	380	727	241	248	545	120	16,5
VM100-25WL	537	643	581	410	853	261	290	625	150	25
VM100-35WL	920	948	964	906	1158	674	282	1024	150	34
VM100-50WL	920	948	964	906	1158	674	282	1024	200	40
VM100-15W	588	801	634	763	901	294	266	700	100	26
VM100-25W	588	851	634	811	1061	296	266	700	150	27,5
VM100-35W	789	851	833	811	1061	395	266	893	150	34
VM100-50W	889	923	933	883	1093	494	282	993	200	40
VM100-80W	721	1217	766	1158	1387	360	454	826	250	63
VM100-100W	889	1217	934	1158	1385	489	454	994	250	87
									L x R	
VM100-150W	721	1186	765	1150	1360	360	909	825	700x250	155
VM100-200W	889	1190	933	1150	1450	489	909	993	700x250	180
VM100-150W	1100	1217	1150	1140	1310	550	454	1200	210x230	131
VM100-200W	1250	1217	1300	1140	1310	625	454	1350	260x300	145
VM100-250W	1400	1217	1450	1140	1310	700	454	1500	260x300	150
VM100-300W	1400	1217	1450	1140	1310	700	454	1500	290x320	252
VM100-400W	1600	1500	1650	1550	1620	800	454	1700	338x400	280

NOTE: Due to ongoing research and product development, specifications, ratings and dimensions are subject to change without notice.

INSTALLATION

WARNING
Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

WARNING	
	Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

Location Selection

The VM must be located in a heated space where it will be possible to conveniently service the unit. Typically the VM would be located in the mechanical room or an area close to the outside wall where the weatherhoods will be mounted. If a basement area is not convenient or does not exist, a utility or laundry room may be used.

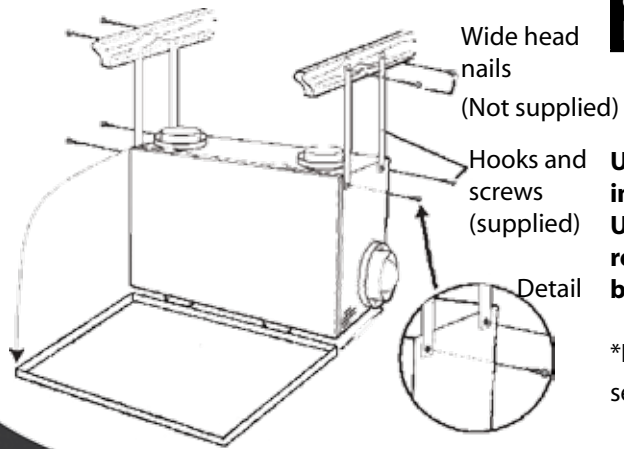
Attic installations are not normally recommended due to:

A) the complexity of work to install

B) the potential of condensation forming due to the unconditioned space

C) difficulty of access for service and cleaning

Suspending the Unit using the Provided Hanging Straps



The VM unit must be installed in a horizontal position as shown in the illustration below. The unit should be suspended using the provided hanging straps. If necessary, the unit may be installed on a platform: however, the cabinet should be isolated from the platform to prevent vibration transmission. The unit must be level. Sufficient clearance at the front of the access door is required for servicing the air filters and core. A minimum of 635mm clearance is recommended so the door can be opened.

Suspending the Unit

The hanging straps should be attached to the unit at the top end corners (mounting screws are already located on the VM case). Securely fasten the other end of the straps to the floor joists with wide head nails (not supplied), making sure the UNIT IS LEVEL. The straps are designed to reduce the possibility of noise, resonance or harmonics; therefore using the full length of the strap between the VM and the floor joists is recommended.

Location and Installation

Weatherhood kit includes two fixed-cover hoods with a 6mm mesh screen.

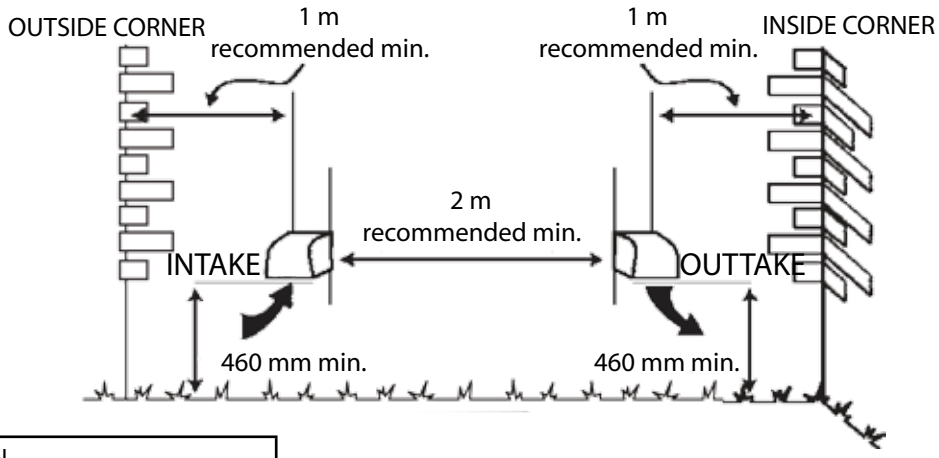
WARNING
Unit must be installed level to ensure proper condensate drainage. Due to the broad range of installation and operational conditions, consideration must be given for the possibility of condensation forming on the unit or connecting ducting. Objects below the installation may be exposed to condensate.

Unit is designed for horizontal installation only as shown.
Using full length hanger straps is recommended for vibration control, but can be shorter if required.

*__NOTE__: Front clearance of 635 mm is recommended for servicing unit.

INSTALLATION

Weatherhood Installation



CAUTION
Weatherhood argement requires a minimum of 2m separation and a minimumof 460mm clearance above the higher of the grade or anticipated snow level.

Exhaust Weatherhood Requirements

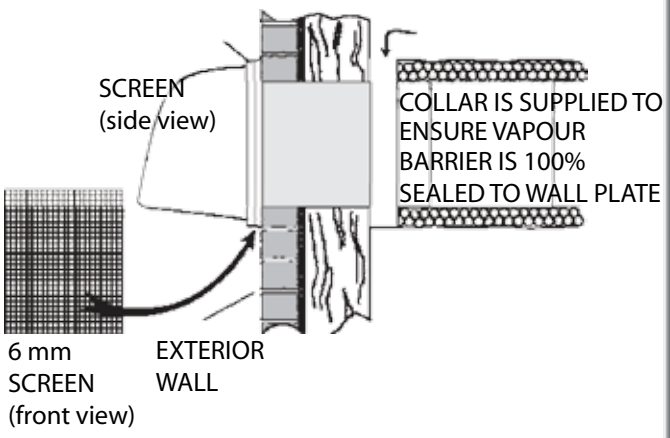
• At least 2 m from the ventilation air intake
• At least 460 mm above ground or above the depth of expected snow accumulation
• At least 1 m away from the corner of the building
• At least 1 m away from gas meter, electric meter or a walk- way where fog or ice could create a hazard
• Not into a garage, workshop or other unheated space

When installing the weatherhood, its outside perimeter must be sealed with exterior caulking

Intake weatherhood Requirements

• Should be located upstream (if there are prevailing winds) from the exhaust outlet
• At least 2 m from the exhaust weatherhood
• At least 2 m away from dryer vents and air handler exhaust (medium or high efficiency furnaces)
• A minimum of at least 2 m from driveways, oil fill pipes, gas meters, or garbage containers, swimming pools
• At least 460 mm above the ground, or above the depth of expected snow accumulation
• At least 1 m from the inside/outside corner of the building
• Do not locate in a garage, attic or crawl space

* Local code may require greater distances.



1. **Thermal Collar slides over galvanized sleeve of Weatherhood.**
2. **Fasten Thermal Collar to Belt.**
3. **Slide the Insulated Flexible Ducting over the Weatherhood's galvanized sleeve and fasten it to the Thermal Collar.**
4. **Hood is hinged to allow for easy access for cleaning of bird screen.**

INSTALLATION

Air Duct Design and Installation

A well designed and installed ducting system will allow the VM to operate at its maximum efficiency.

Always try to keep duct runs as short and straight as possible. See Installation Diagrams for various installation options.

The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and the appropriate port on the VM. It is very important that the fresh air intake line be given special attention to make sure it is well sealed. A good bead of high quality caulking (prefer- ably silicone sealant) will seal the inner flexible duct to both the VM port and the weatherhood prior to clamping with a large zip tie.

To minimize air flow restriction, the flexible insulated duct that connects the two outside weatherhoods to the VM should be stretched tightly and be as short as possible.

Twisting or folding the duct will severely restrict air flow. See below for the recommended connection of flexible insulated ducts to the the outside weatherhoods and the VM.

Installing the Ducting Between the VM & Living Areas in the House

To maximize airflow in the duct system, all ducts should be kept short and have as few bends or elbows as possible.

Forty-five degree elbows are preferred to 90° elbows. Use "Y" tees instead of 90° elbows whenever possible.

All duct joints must be fastened with screws, rivets or duct sealant and wrapped with mastic or a quality duct tape to prevent leakage. Mastic is preferred but if duct tape is used, we recommend alu- minum foil duct tape.

Galvanized ducting from the VM to the living areas in the house is recommended whenever possible, although flexible duct can be used in moderation if necessary.

To avoid possible noise transfer through the duct system, a short length (approximately 300mm) of non-metallic flexible insulated duct should be connected between the VM and the supply/ exhaust duct system.

The main supply and return lines to/from the VM must be 150mm minimum. Branch lines to the individual rooms may be as small as 100mm, but 125mm lines are preferred .

All ducts running through attics and unheated spaces must be sealed and insulated to code.

INSTALLATION

WARNING
Include a short length of fabric, flex duct or other non-metallic connector in the "Fresh Air to Building" hard ducted line in order to keep the VM separately grounded (electrically) from the air handler. This will avoid a possible shock hazard to service people if a short to ground develops in one of the devices.

Fresh Air Ducting

In applications that do not include an air handler, fresh air should be supplied to all bedrooms and living areas, excluding bathrooms, kitchen and utility areas. Grilles should be located high on a wall or in ceiling locations. Grilles that diffuse the air comfortably such as the Round Diffuser are recommended.

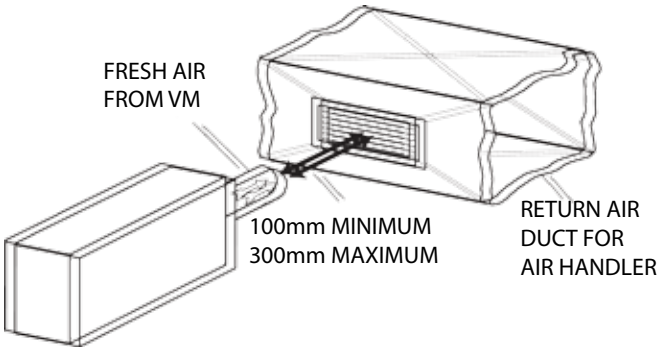
If the floor is the only option available, then special care should be taken in locating grilles. Areas such as under baseboard heaters will help to temper the air. Also optional inline duct heaters are available for mounting in the supply duct work to add heat if required.

Direct Connection to Air Handler Duct System

Should you wish to hard duct the fresh air from the VM directly into the cold air return of the air handler, remember to check the air flow balance of the VM with the air handler fan both "ON" and "OFF" to determine that it does not imbalance the unit more than 10%.

Indirect Connection to Air Handler Duct System

If permitted by local codes, an indirect connection may be made between the VM fresh air duct and the air handler return plenum. The fresh air from the unit may be directed at a grille installed in the cold air return duct of the air handler. The fresh air outlet from the VM should be no closer than 100mm and no more than 300mm from the grille.



INSTALLATION

Stale Air Exhaust System

The stale air exhaust system draws air from the points in the house where the worst air quality problems occur. Stale air ducts should be installed in the bathroom, kitchen, and laundry room. Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system. Also, the air handler return duct may be used to exhaust from. In this method, the exhaust air is not ducted back to the VM with "dedicated lines" from bathrooms, kitchens, etc. Instead, the exhaust air is drawn out of the cold air return of the air handler. The air handler blower must be running when the unit is operating for this system to be effective.

CAUTION
Do not mount exhaust grille within 1.2m (horizontally) from stove to prevent grease from entering VM.

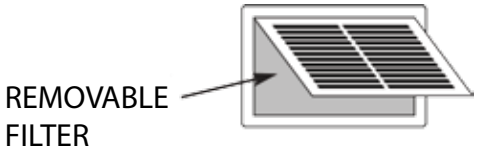
Balancing Dampers and Grilles

Balancing dampers and/or adjustable grilles should be used to balance the flow rates into and out of various rooms.

Grilles or diffusers should be positioned high on the wall or in the ceiling. Kitchen exhaust grilles must never be connected to a range hood. They should be installed at least 1.2m horizontally away from the stove. A hinged 150 X 250mm rectangular kitchen exhaust grille is available as part number. This grille includes a removable grease filter.

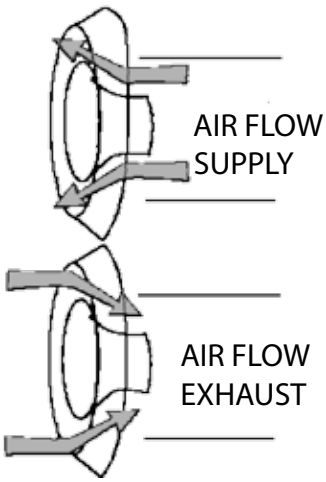
Field-supplied balancing dampers should be installed external to the unit to balance the amount of stale air being exhausted with the amount of fresh air being brought into the house. Refer to Air flow Balancing section.

Kitchen Grille



Round Diffusers

The Round Diffuser is available in
100mm
150mm
200mm



INSTALLATION

Drain Connection (VM Only)

During a defrost cycle, the VM may produce some condensation. This water should flow into a nearby drain, or be taken away by a condensate pump.

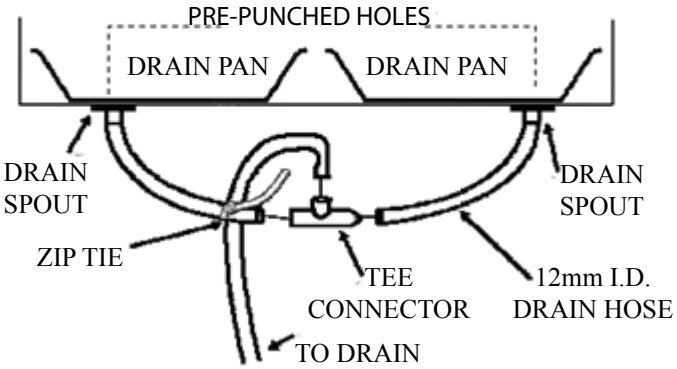
CAUTION
The VM and all condensate lines must be installed in a space where the temperature is maintained above the freezing point or freeze protection must be provided.

The VM cabinet has prepunched holes for the drain (see below). Insert the drain spout through the hole in the drain pan. Do not forget the "O ring" which seals each spout to the pan. REMEMBER TO HAND TIGHTEN ONLY the washer and lock nut which hold the drain spout in place.

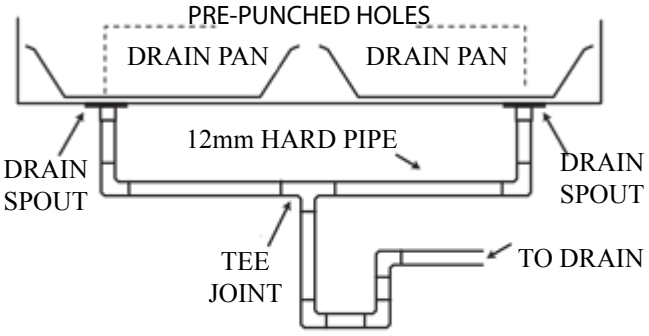
Construct a P-Trap using the plastic tee connector. Cut two lengths of hose and connect each piece to an end of the "T" fitting, then connect the other ends to the two drain spouts. Position the "T" fitting to point upward, andconnect the drain line. Tape or fasten base to avoid any kinks. This creates a "trap" which will hold some condensate and prevent odors from being drawn up the hose and into the fresh air supply of the VM.

"P" Trap (VM only)

DRAIN HOSE PLUMBING



DRAIN HOSE PLUMBING



NOTE: Secondary drain pan may be required to protect from condensate leakage.

APPLICATION ILLUSTRATIONS

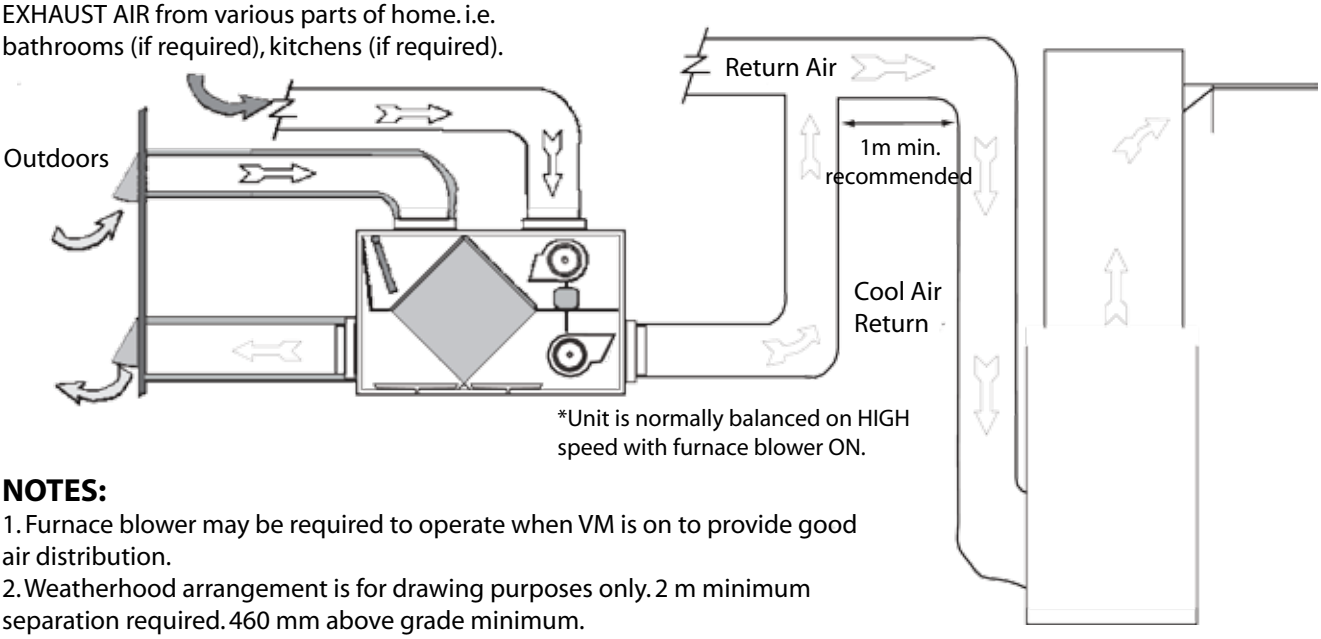
Partially Dedicated System for VM

- Stale air drawn from key areas of home (bathroom, kitchen, laundry)
- Fresh air supplied to return air duct of air handler

WARNING
VM must be balanced.

DIRECT CONNECTION of the SUPPLY AIR STREAM to the FURNACE COLD AIR RETURN (Stale air drawn from key areas of home)

EXHAUST AIR from various parts of home. i.e. bathrooms (if required), kitchens (if required).



*Unit is normally balanced on HIGH speed with furnace blower ON.

NOTES:

1. Furnace blower may be required to operate when VM is on to provide good air distribution.
2. Weatherhood arrangement is for drawing purposes only. 2 m minimum separation required. 460 mm above grade minimum.
3. Due to the differences in pressure between the VM and the equipment it is being connected to, the VM's airflow must be confirmed on site, using the balancing procedure found in the installation manual

ATTENTION
Duct configuration may change depending on the model. See Specifications for your unit.

CAUTION
Weather hood arrangement - requires a minimum of 2m separation and a minimum of 460mm clearance above grade or anticipated snow level.

APPLICATION ILLUSTRATIONS

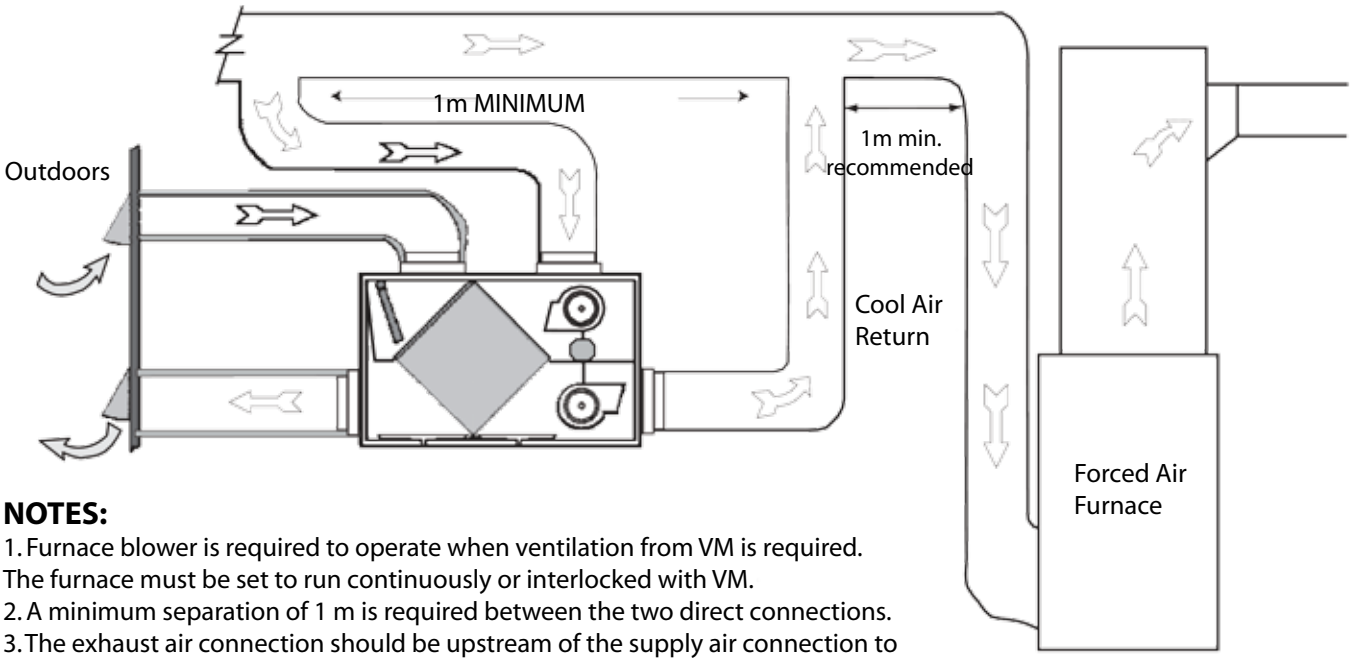
Simplified Installation for VM
(Return/Return Method)

- It is mandatory that the furnace run continuously or VM operation be interlocked with the furnace.
- Check local codes/authority having jurisdiction for acceptance.

WARNING
VM must be balanced. Refer to "Airflow Balancing" in this manual.

RETURN AIR

DIRECT CONNECTION of both the VM SUPPLY AIR STREAM and EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN



NOTES:

1. Furnace blower is required to operate when ventilation from VM is required. The furnace must be set to run continuously or interlocked with VM.
2. A minimum separation of 1 m is required between the two direct connections.
3. The exhaust air connection should be upstream of the supply air connection to prevent exhausting any fresh air.
4. Weatherhood arrangement is for drawing purposes only. 2 m minimum separation required. 460 mm above grade minimum.
5. Due to the differences in pressure between the VM and the equipment it is being connected to, the VM's airflow must be confirmed on site, using the balancing procedure found in the installation manual.

*Unit is normally balanced on HIGH speed with furnace blower ON.

ATTENTION
Duct configuration may change depending on the model. See Specifications for your unit.

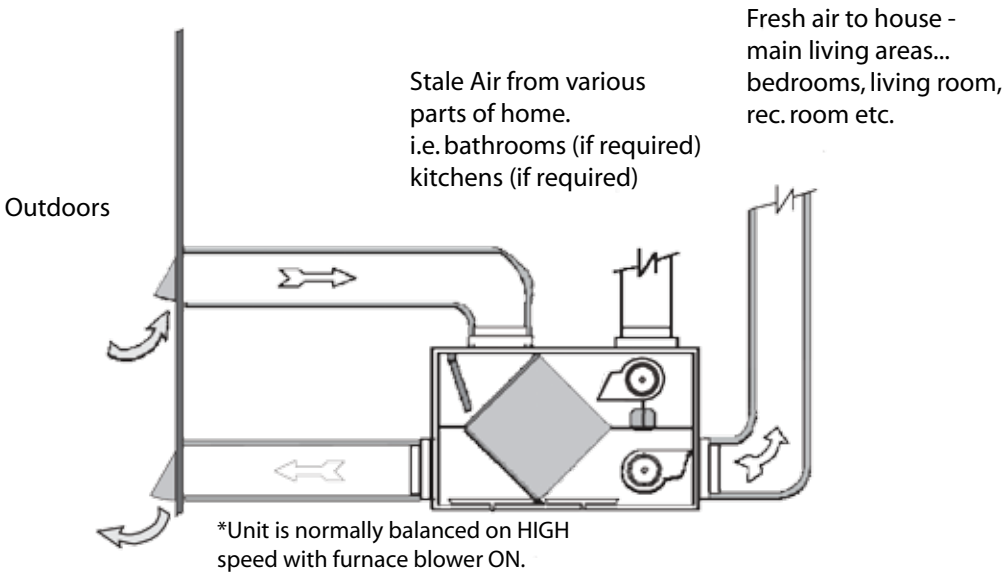
CAUTION
Weather hood arrangement - requires a minimum of 2m separation and a minimum of 460mm clearance above grade or anticipated snow level.

APPLICATION ILLUSTRATIONS

Fully Dedicated System for VM

- Stale air drawn from key areas of home (bathroom, kitchen, laundry)
- Fresh air supplied to main living areas of house

WARNING
VM must be balanced. Refer to "Airflow Balancing" in this manual.



NOTES:
1. Weather hood arrangement is for drawing purposes only. 2m minimum separation required.
460mm above grade minimum or above anticipated snow level .
2. The VM air flow must be confirmed on site, using the balancing procedure found in the installation manual.

ATTENTION
Duct configuration may change depending on the model. See Specifications for your unit.

CAUTION
Weather hood arrangement - requires a minimum of 2m separation and a minimum of 460mm clearance above grade or anticipated snow level.

ELECTRICAL & OPERATION

The VM unit should be plugged into a standard designated (230 volts) electrical outlet with a ground. The outlet should be serviced by a separate 13A socket. An extension cord should not be used with this appliance. A qualified service technician should make any required electrical connections.

Remote Control Connections

Low voltage connections between the remote controls, the dehumidistat, or the fan timer should be made by a qualified service technician. Low voltage wires from the remote controls are connected to the VM microprocessor board.

Changing Speeds

The ventilator automatically operates on its lowest speed when plugged in or switched on.
High speed is available with the use of optional remote controls connected to the appropriate terminals inside the electrical box.

How much ventilation do I need?

During seasons when your windows and doors are closed (winter and summer if air conditioned) the VM should operate continuously when the dwelling is occupied.
For most installations the VM will normally be set to operate continuously on low speed.

WARNING
In order to prevent electric shock when cleaning or servicing the VM, it is extremely important to confirm the polarity of the power line that is switched by the safety (disconnect) switch. The hot line (black) is the proper line to be switched. To confirm the proper polarity, use a voltmeter or test lamp to ensure there is no power after the switch when the door is open. Check between that point and ground (on the cabinet). Always make sure that the VM is properly grounded.

OPTIONAL CONTROLS

Optional Remote Control Devices
Low Voltage

DEHUMIDISTAT VENTILATION CONTROL (D.V.C.)
*** remove jumper on circuit board when using this control**
**** requires 3 wires (low voltage)**
• Designed for a central location
• Ventilation control turns VM system ON and OFF
• Dehumidistat increases ventilation when required
• High speed override switch
• Great for building code requirements
• Low voltage
• Connect one per VM only
• Connects to red (ST2), black (ST1) and orange (ST3) on circuit board

REMOTE DEHUMIDISTAT
***requires 2 wires (low voltage)**
AREAS: Kitchen and bathrooms, spa or swimming pool.
• anywhere humidity is a concern
• provides high speed ventilation when humidity level exceeds selected setting
• Connects to red (ST2) and black (ST1) on circuit board

AIR FLOW BALANCING

It is necessary to have balanced air flow in an VM. The volume of air brought in from the outside must equal the volume of air exhausted by the unit. If the air flow is not properly balanced, then:

- The VM may not operate at its maximum efficiency
- A negative or positive air pressure may occur in the house
- The unit may not defrost properly
- Failure to balance VM properly may void warranty

CAUTION
Ensure balanced air flow in VM. Excessive the external walls of the building where it may condense (in cold weather)and degrade structural components. May also cause key holes to freeze up.

Excessive negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement/ground contact areas.

WARNING
Ensure balanced air flow in VM. Excessive negative pressure may also cause the back- drafting of vented combustion equipment.

Read the Application Warning in Clearances & Requirements section of this manual!

Prior to balancing, ensure that:

1. All sealing of the duct system has been completed.

2. All of the VM's components are in place and functioning properly.

3. Balancing dampers are fully open.

4. Unit is on HIGH speed.

5. Air flow in branch lines to specific areas of the house should be adjusted first prior to balancing the unit. A smoke pencil used at the grilles is a good indicator of each branch line's relative air flow.

6. After taking readings of both the stale air to the VM duct and fresh air to the house duct, the duct with the lower CFM ([m3h velocity) reading should be left alone, while the duct with the higher reading should be dampered back to match the lower reading.

7. Return unit to appropriate fan speed for normal operation

8. A field-supplied balancing damper for the stale air side is required for system balancing.

AIR FLOW BALANCING

Balancing Procedure

The following is a method of field balancing an VM using a Pitot tube, which is advantageous in situations when flow stations are not installed in the duct system. Procedure should be performed with the VM on high speed.

The first step is to operate all mechanical systems on high speed, which have an influence on the ventilation system, i.e. the VM itself and the air handler, if applicable. This will provide the maximum pressure that the VM will need to overcome, and allow for a more accurate balance of the unit.

Drill a small hole in the duct (about 76 mm), 1 m downstream of any elbows or bends, and one foot upstream of any elbows or bends. These are recommended distances but the actual installation may limit the amount of straight duct.

The Pitot tube should be connected to a magnehelic gauge or digital manometer capable of reading from 0 to 62 Pa of water, preferably to 3 digits of resolution.
The tube coming out of the end of the Pitot is connected to the high pressure side of the gauge.

Insert the Pitot tube into the duct; pointing the tip into the air flow.

For general balancing it is sufficient to move the Pitot tube around in the duct and take an average or typical reading. Repeat this procedure in the other (supply or return) duct. Determine which duct has the highest air flow (highest reading on the gauge). Then damper that air flow back to match the lower reading from the other duct. The flow should now be balanced.

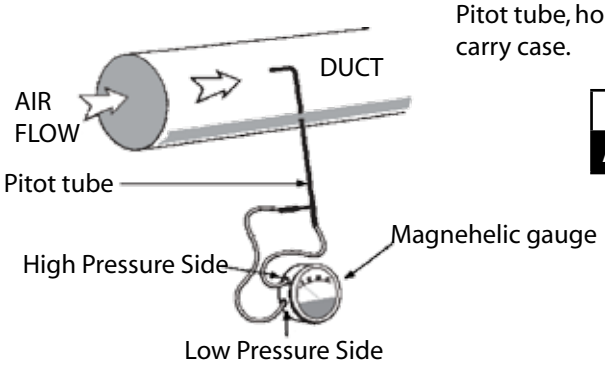
Actual air flow can be determined from the gauge reading. The value read on the gauge is called the velocity pressure. The Pitot tube comes with a chart that will give the air flow velocity based on the velocity pressure indicated by the gauge. This velocity will be in either feet per minute or meters per second. To determine the actual air flow, the velocity is multiplied by the cross sectional area of the duct being measured. The accuracy of the air flow reading will be affected by how close to any elbows or bends the readings are taken. Accuracy can be increased by taking an average of multiple readings as outlined in the literature supplied with the Pitot tube.

AIR FLOW BALANCING

Pitot Tube and Gauge

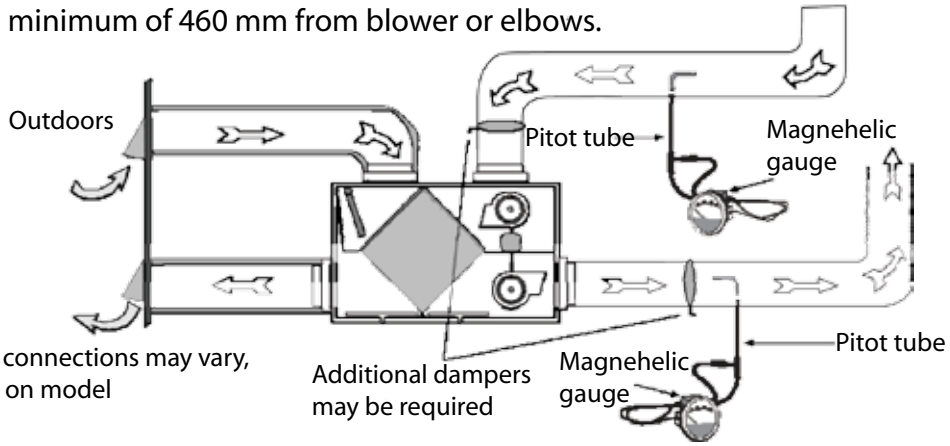
Pitot Tube Air Flow Balancing Kit
with magnehelic gauge, Pitot tube, hose and carry case.

ATTENTION
Apply use of balancing dampers as required.



Placement of Pitot Tube VM

Place Pitot tube a minimum of 460 mm from blower or elbows.

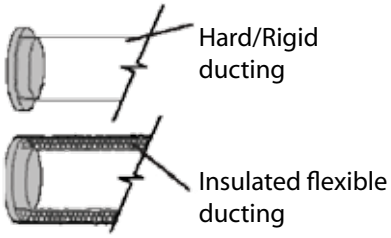


Note: Duct connections may vary, depending on model

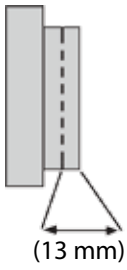
Balancing Collar Instructions

Often the "Fresh Air to House" ducting will have the heaviest air flow which must be dampered down. A Balancing Damper is located in the "Fresh Air to House" collar.

Push and turn with slotted screwdriver. Damper automatically locks when pressure is released.



Installations where the VM is ducted directly to the return of a furnace may require additional dampening on the fresh air to building duct. This is due to the high return static pressures found in some furnace installations.



When connecting ductwork to the collar, take note where screws are located. Screws should be located no further than 13 mm from outside edge of collar, so as not to impede operation of the damper.

TROUBLESHOOTING

Symptom	Cause	Solution
Poor Air Flow	• 6mm mesh on the outside hoods is plugged • filters plugged • core obstructed • house grilles closed or blocked • dampers are closed if installed • poor power supply at site • duct is restricting VM • improper speed control setting • VM air flow improperly balanced	• clean exterior hoods or vents • remove and clean filter • remove and clean core • check and open grilles • open and adjust dampers • have electrician check supply voltage at house • check duct installation • increase the speed of the VM • have contractor balance VM
Supply air feels cold	• poor location of supply grilles, the air flow may irritate the occupant • outdoor temperature extremely cold	• locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuser or grilles so as not to directly spill the supply air on the occupant (eg. over a sofa) • turn down the VM supply speed. A small duct heater (1kW) could be used to temper the supply air • placement of furniture or closed doors is restricting the movement of air in the home • if supply air is ducted into air handler return, the air handler fan may need to run continuously to distribute ventilation air comfortably
Dehumidistat is not Operating	• improper connection to ventilator • external low voltage is shortened out by a staple or nail • check dehumidistat setting it may be on OFF	• check that the correct terminals have been used • check external wiring for a short • set the dehumidistat at the desired setting
Humidity Levels are too High in Winter Condensation is appearing on the windows	• dehumidistat is set too high .• lifestyle of the occupants • moisture coming into the home from an unvented or unheated crawl space • moisture is remaining in the washroom/bathroom and kitchen areas • condensation seems to form in the spring and fall • VM is set at too low a speed	• set dehumidistat lower • avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Heating wood may have to be moved outside • vent crawl space and place a vapor barrier on the floor of the crawl space • ducts from the washroom/bathroom should be sized to remove moist air as effectively as possible, use of a washroom/bathroom fan for short periods will remove additional moisture • timer or fan can be added to washroom/ bathroom exhaust • on humid days, as the seasons change, some condensation may appear but the home's air quality will remain high with some VM use • increase speed of the VM

TROUBLESHOOTING

Symptom	Cause	Solution
Humidity Levels are too Low	• dehumidistat control set too low • blower speed of VM is too high • lifestyle of occupants • VM air flow may be improperly balanced	• set dehumidistat higher • decrease VM blower speed • humidity may have to be added through the use of humidifiers • have a contractor balance VM air flow
VM and / or Ducts Frosting up	• VM air flow is improperly balanced • malfunction of the VM defrost system	• Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions • have HVAC contractor balance the VM • ensure working properly.
Condensation or Ice Build Up in Insulated Duct to the Outside	• incomplete vapor barrier around insulated duct • a hole or tear in outer duct covering	• tape and seal all joints • tape any holes or tears made in the outer duct covering • ensure that the vapor barrier is completely sealed
Water in the bottom of the VM	• drain pans plugged • improper connection of VM drain lines • VM is not level • drain lines are obstructed • VM heat exchange core is not properly installed	• ensure O-Ring on drain nozzle sits properly • look for kinks in line • check water drain connections • make sure water drains properly from pan

MAINTENANCE

1. Inspect Exterior Hoods at least once a month

Make sure exhaust and fresh air supply hoods are not blocked or restricted by leaves, grass, or snow. In winter, it is especially important to make sure snow is not blocking the hoods or that frost has not built up on the wire mesh.

WARNING: Blockage of hoods may cause an imbalance.

2. Clean Air Filters - Twice a Year

The standard filters equipped with your VM are removable and washable.

a) simply open access door and slide core out

b) remove filter clips

c) once clips are removed filters can be taken off the core to be rinsed with water or a combination of mild soap and water. Do not clean in the dishwasher

d) to re-assemble, place clean filter(s) (wet or dry) back into their positions against the core and return clips to their original position

e) slide core back into its original position

3. Clean Core - Twice a Year

a) open access door

b) carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel

c) once removed from the cabinet remove filters

d) wash core in warm soapy water (do not use dishwasher)

e) install the clean filters

f) install clean core

NOTE: Core installation label on the outer end of the core.

To install the clean core:

a) first mount the bottom flange of the core guide into the bottom H channel approximately 6mm

b) mount the left or right side flange of the core guide approximately 6mm followed by the other side

c) mount the top flange of the core guide into the top H channel approximately 6mm

d) with all four corners in place and the core straight and even, push hard in the center of the core until the core stops on the back of the cabinet

NOTE: Core will appear to stick out from cabinet approximately 3mm. This is designed this way so that the access door will fit tight against the core.

MAINTENANCE

4. Motors - Maintenance Free

5. Drain (condensate) Line - Clean Once a Year

Inspect drain line, drain spout and "P" trap for blockage, mold or kinks. Flush with warm soapy water and replace if worn, bent or unable to clean.

6. Clean Duct System if Required

The duct system running to and from the VM may accumulate dirt. Wipe and vacuum the duct once every year. You may wish to contact a Heating/Ventilation company to do this.

7. General Maintenance - Twice a Year

Wipe down the inside of the cabinet with a damp cloth to remove dirt, bugs and debris that may be present.

8. Cleaning the Fans

Fans may accumulate dirt causing an imbalance and/or excessive vibration of the VM.
A reduction in the air flow may also occur.
In new construction this may result within the first year due to heavy dust and may occur periodically after that over time depending on the outdoor conditions.

• unplug the VM and open the service door

• remove the core

• remove ducting (metal and/or flexible insulated type) from the red and/or blue ports which are connected immediately inline with the fan assembly

• use a small brush, such as a toothbrush or pipe cleaner, and insert first
(a) through the large opening of the fan assembly and then
(b) through the smaller opening in the end of the fan assembly

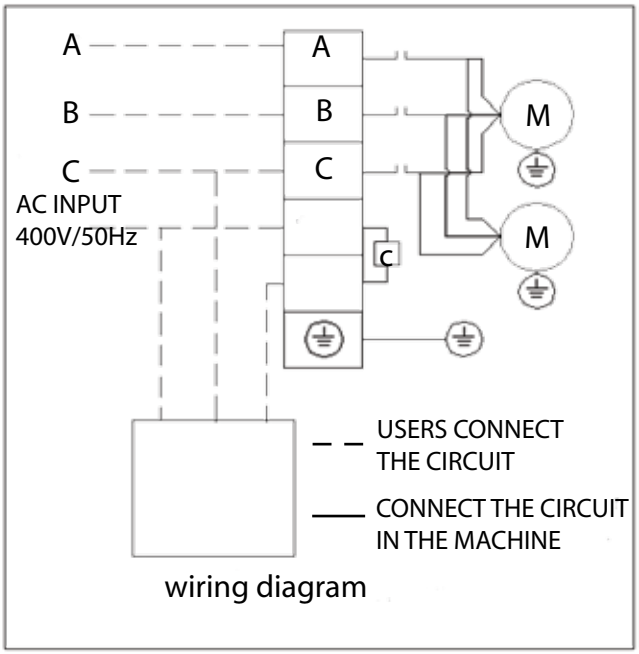
• scrub individual fan blades until clean. Avoid moving or dam- aging balancing flat weight, clip is usually found on one or more of the fan blades

• vacuum and wipe

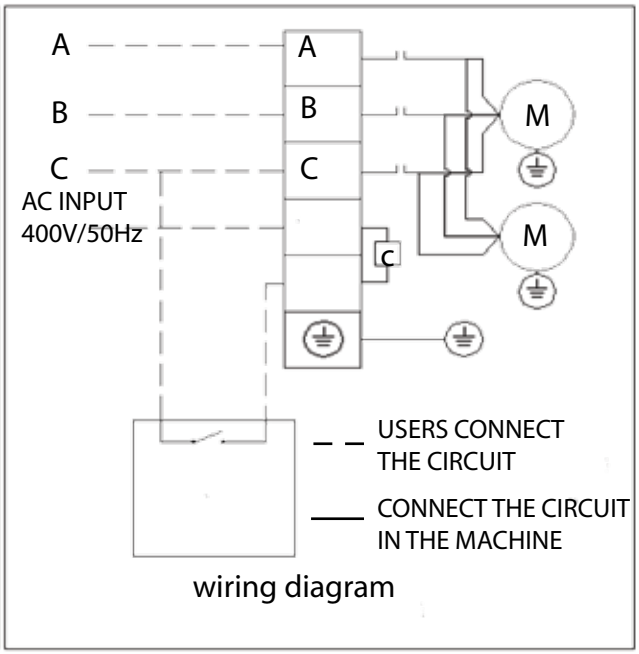
• reassemble making sure ducting is reattached firmly and insulation and moisturebarrier are sealed and taped

Before attempting this task, thought should be given to having a qualified service technician complete the service work.

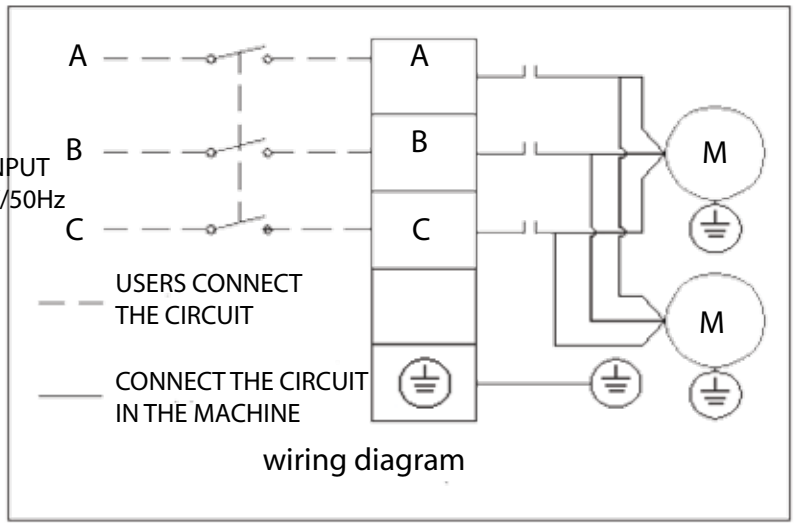
WIRING DIAGRAM



Applicable to 3 phase 400V/single speed LCD controller



Applicable to 3 phase 400V/single speed controller



Applicable to normal 3 phase 400V circuit breaker

NOTES:

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